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MONTESSORI EDUCATION FOR CHILDREN WITH DEFECTIVE SIGHT.*

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MY attention was first called to the value of Madame Montessori's system of education and its possibilities in training children with very defective sight by the case of a small patient, aged 2½ years when I saw him first. Severe ophthalmia neonatorum had caused blindness in the left eye and very defective vision in the right eye. In July of last year when I saw him again he was 3½ years old, and I was very greatly impressed by the general intelligence of the boy and by the fact that despite his great visual disabilities he already knew his letters and was able to count small numbers. The parents ascribed this to the training he had had during the preceding six months at a Montessori school. I have since had occasion to investigate a little more fully the value of this method for the training of normal children and though I have no more than a superficial book knowledge of it, it seems to me to have possibilities for training blind children or those with defective sight which, as ophthalmic surgeons, we should know about and, if possible, develop.

* A paper read before the Ophthalmological Section of the Royal Society of Medicine on March the 3rd, 1915.

My subject matter will be in no way new to those who have taken an interest in problems of child psychology or modern elementary education, but even in quarters where such an interest might be expected to be most active I have found the most complete ignorance on these subjects, an ignorance which I shared a few months ago. For the education of children of school age with defective sight much has been done in recent years, and only last year Mr. Bishop Harman read an excellent paper before the Section on methods in use. But it is for younger children in the very important formative period of three to six that the Montessori methods are at present adapted. During those years the child is undergoing its most important sensory education. It is learning to use not only all the ordinary senses of sight, hearing, touch, taste, and smell, but also the muscular and stereognostic senses, and to associate the percepts arising from these various senses and to co-ordinate its movements. Froebel stood almost alone in the attempt to systematise education during this important period of a child's life. But in many quarters it was and still is regarded as sufficient to allow the normal practical contact with the surrounding and expanding world of the child's life to give it the experience necessary for its development. Only in cases where the child remains in an obviously defective condition after reaching normal school age are attempts made to adopt systematic methods of dealing with these sensory defects. The most important work in this line was done by Séguin, who published his 'Traitement Moral, Hygiéne et Education des Idiots' in Paris in 1846. This work, though it avowedly deals with the treatment of defective children, is based on such sound psychological observation of child life and development that to the present day it forms the foundations on which all child educators must build. Madame Montessori herself acknowledges in the fullest fashion all that she owes to Séguin and to her early experience in dealing with defective children. Indeed, it was mainly the fact that defectives could be brought to such a level of accomplishment that they could compete on equal terms with normal children of the same age which induced Madame Montessori to realise that the methods in use for normal children must be in some way lacking, and determined her to take up the question of applying Séguin's methods to the teaching of normals. She gave up her medical work entirely and devoted seven years to the study of pedagogy and pyschology, especially the psychology of the child, and it was only in 1907 that the first school under the Dottoressa's guidance was opened in Rome. These intervening eight years have witnessed a

great development and extension of the method, so much so that even in this conservative country several classes have already been started. I know of three schools in London, a very flourishing small school in Runton, and one in Birmingham, a class in a village school in the New Forest, and large classes in elementary Board Schools in York and in Sunderland. The main difficulty in the way of the extension of the system, apart from the inertia of the teaching profession and the public or the parents, is the difficulty of finding the right conductor. I avoid the use of the term teacher because the essence of the method is to allow the natural development of the child to take place with the most scrupulous avoidance of any attempt to force it into a common mould. It requires a patience worthy of Job himself to avoid interfering when a child is seen doing an exercise wrong time after time; but the reward comes in the intense satisfaction displayed by the child when at last it succeeds in doing it rightly unaided. Much of the training is of such a character that the child can be left to work out the correct method by itself, and in some quarters this feature has given rise to a false impression that the children are allowed to do as they please. This is quite untrue if it is meant to imply an absence of discipline; but in the sense that the child is encouraged to develop its natural healthy aptitudes fully and freely it is true. A child who is tired of one particular exercise or who finds it beyond his capacity will gain no benefit by being kept at that exercise. If he is interested in it no outside enticement will take his mind off it until he has achieved it. This is one of the important points in which it differs from the kindergarten system, where it is supposed that it tires a child's brain to keep it more than a limited space of time at one exercise. The result is that as soon as the child becomes thoroughly interested in one thing his mind is distracted into another quite different groove; as an intelligent small boy remarked, "The lesson was all interruptions." I feel sure this is based on a wrong idea of child psychology, and that so long as the child is interested there is no chance of brain fag. Constantly changing the channel in which the child's mind is running is much more likely to tire it out. A child left to itself possesses a power of concentration on the work or play on hand which might serve as an example to many of its elders. Surely the Montessori system, which tends to conserve and develop this power, is preferable to one which dissipates it. Within the limits of a short paper I can only deal briefly with the material basis of the system, but I hope it may be sufficient to let the section realise how easily it could be adapted for the use of children whose

sight is lost or defective. Indeed, even with normal children many if not most of the exercises are done frequently blindfolded to educate the tactile muscular and stereognostic senses. And if it is important to train these senses in normal children, how much more important is it to do so in the child who is deprived of that sense which for most of us is the main one to which our educative processes have been adapted. Before I go further I think it may interest members to see what kind of result can be reached in education in the ordinary limited sense of the word. I ask you to look at a sample of writing by a child five years old. A sense of shame alone prevents me from putting up for comparison a sample of writing by one who only painfully acquired the art by copying pot-hooks and copy-book phrases. Vision in the Montessori system plays a very small part in learning to write. The art is acquired almost casually as a by-product in training the tactile and muscular senses.

A child of three is first started on what may be called exercises of practical life—buttoning, lacing, fastening hooks and eyes, and tying bows. I have seen a normally restless and over-active child sit quietly for an hour over one or other of these frames, making many mistakes, but realising them for herself, and not in any way relishing the interference of the intrusive elder who wishes to show her how to do it, and ultimately triumphing in doing it correctly unaided. This is the first exercise in muscular co-ordination. The second series is devoted to the tactile sense. It consists of boards covered with strips of sandpaper and fabrics of different texture and surface, which the child learns to differentiate blindfolded. Then come exercises in the discrimination of simple sounds gradually leading up to musical sounds and the development of a sense of rhythm. With this is associated the teaching of the art of moving quietly and gracefully, and, in a later stage, dancing.

Perception of weight is taught by means of blocks of wood of the same size, but of varying density.

The next series of exercises introduces the child to the idea of dimension. Three series of inset blocks, which vary (*a*) in length only, (*b*) in breadth or diameter only, and (*c*) in length and breadth. Starting with one set at a time, the child learns to fit them all into their proper places, until finally it can do the exercise with all the blocks mixed together. This exercise is done both visually and tactually, and ultimately, as tactile discrimination develops, a child will fit every block in without mistake when blindfolded. In this series the apparatus is self-corrective, and the child can be left absolutely

to itself to play with the insets. The idea of dimension is carried further by the tower, cubes varying in three dimensions, the broad stair, bricks varying in two dimensions, and the long stair, where only one dimension varies. This also serves to introduce later on the idea of number. The child, of course, is told the names of the different dimensions, and learns to appreciate length, breadth, and height.

The next teaching material introduces the idea of form. It consists of a large series of wooden frames with geometric insets of various kinds. These are used first of all visually and then blindfolded, and the child fits the form into the frame by tactile muscular sense. From the point of view of education in the narrower sense of the word this forms one of the most important steps in the process of learning to write. The child in a very short time gains such a control of the tactile muscular sense that simply by feeling the outer edge of the insets and the inner edge of the frames it is able to fit in any one of these figures from the simplest to the most complicated. At the same time, it is taught the names of the different figures, and though it may seem absurd to talk of a child of four knowing anything of geometry, it is actually acquiring ideas of shape which are the basis of all geometrical teaching, and this is carried further by a series of cards reproducing these shapes, first in solid colour, then in thick outline, and then in thin outline, so that the child fitting the insets over these gradually is carried over mentally from the concrete form to the abstract idea of spatial relations limited by lines.

I am afraid the training of the colour-sense will hardly be applicable to blind children, so I pass on to the next material, which consists of metal insets similar to the wooden ones. With these the child commences to use pencils and coloured chalks, forming the outlines on cards and filling them in with colours. At first the colours may transgress the bounds of the outlines wildly, but in an astonishingly short space of time muscular control is gained, and the figure is filled in with strong, firm lines. This exercise would probably have to be modified for children with defective sight, and, instead of outlining the inset, the outer frame would have to be made of metal, and after outlining the figure the child would use the frame as a control for filling in the figure. It would thus gain in a similar way power of muscular control over a pencil.

The first alphabetic material consists of script letters cut out in sandpaper and mounted on cards. These the child learns more by touch than by vision. The card is held in the left hand, and the

right index-finger is passed lightly over the sandpaper from left to right, and the name of the letter is repeated. For normal children the vowels are printed on blue and the consonants on pink. With blind children different roughnesses of sandpaper or some difference in surface texture could easily be devised for differentiating purposes. As the child is learning these letters by tactile muscular sense, it is at the same time practising the movements of muscular co-ordination, which are necessary for the formation of the letters, and as it has gained already the power of control of a pencil or chalk, it suddenly realises its power of combining these two acquirements, and without any further instruction writing is an accomplished fact in that child's training.

Mr. Holmes, in his report to the Board of Education, gives six weeks as a very ordinary time from the beginning of the training till the writing of actual letters. With older children of six or more this may be reduced to a month, and so excellent is the control of muscular movement that from the very first the writing of Montessori children compares favourably with the writing of third and fourth standard children, and, as I have already said, compares more than favourably with the writing of some adults whom I could mention.

When we come to reading we are faced in this country with a difficulty that is not met with in Italy. Italian is probably the most purely phonetic language in Europe, and the child who has learned the sound of the various letters has only to name these successively, with gradually increasing rapidity, until he recognises that they form a word which he knows. English is probably the least phonetic language in Europe, and, at least to begin with, great care must be exercised in selecting words which are phonetic. The letters for teaching the formation of words are cut out of the cardboard and unmounted. The child has meantime learned all their names, both visually and tactually, but you may still see them, if they are a little doubtful, passing their fingers rapidly over the letter. It would almost seem as if the tactile impression conveyed a more vivid impression to their intelligence than the visual.

In teaching numeration and arithmetic we go back first to the long stair which increases by lengths of one decimetre from one to ten. The names and shapes of the numbers are learned by means of sandpaper figures like the letters, and counting and addition and subtraction are learned by means of the counting boxes and sticks, and for numbers over ten by wooden frames with printed numbers.

This material substratum of which I have been speaking is only a

part, I might almost say a small part, of the method. The whole method itself is of no avail if the principle underlying it is not fully appreciated. Of course it is revolutionary, a reversal of previously accepted notions of elementary education. It is the free development by the child itself of all its inherent capacities, as opposed to the inculcation from an outside source of dogmata which the child may or may not accept willingly or sullenly, but which as they are usually enforced do not easily become a part of the child's intellectual concepts. Everything that he acquires by the Montessori method he acquires for himself. It is part of his own intellectual being built up from his own sensory percepts. It is he himself who has learned to observe and to associate the resulting ideas, and his knowledge grows from natural roots and is not a forced graft from an outside source, and lest it might be thought that there is anything forced or fatiguing about the almost uncanny rapidity of progress I may definitely say that these children are all the time quite unconscious that they are doing anything more than playing at a most absorbing game, and the weeping is very bitter if for any reason they are kept away from this game.

Possibly the most important feature in the whole method is the development of the sense of self-discipline in the child and its unconscious realisation of its social duty to other children. Mr. Holmes, late chief inspector of elementary education, speaking of this factor, has remarked how speedily even the most turbulent and unruly children become aware of their duty of self-control or have it enforced on them by the example of the community. By no other method can there be so full a development of the sense of individual freedom with self-discipline and the sense of duty as a member of a social community. And he went on to say that Montessori trained children, when they came under the more restrictive discipline of ordinary school-life, instead of proving less amenable, are more easily controlled than the ordinary child.

For visually defective children some slight modifications would be necessary in some parts of the apparatus. In learning numeration the long stair, instead of being made in alternate colours, blue and red, would have to be made with alternating rough and smooth surfaces. Sandpaper figures would have to be used in the counting-boxes. Frames and blocked sandpaper letters would have to be used in forming words, but so efficiently are the tactile muscular and stereognostic senses developed that I believe it would be possible to get a blind child to write on ordinary paper, keeping a moderately straight line, without the use of any of the mechanical devices

which most of them have now to use. Helen Keller is a revelation of the possibilities of continuous and assiduous care in training where blindness and deafness were combined. For those less affected I believe Madame Montessori's system has possibilities capable of producing results almost as miraculous, and the purpose of my paper is simply to call the attention of the Section to it in the hope that it may be of use to members who may at any time be called on to give advice as to what is to be done in regard to the training of children who are blind or whose sight is defective.

CASE OF INFANTILE HEMIPLEGIA AFFECTING THE LEFT HALF OF THE BODY, WITH CONSIDERABLE UNDER-DEVELOPMENT OF THE LEFT UPPER EXTREMITY; JACKSONIAN CONVULSIONS AFFECTING THE PARALYSED UPPER EXTREMITY; PETIT MAL.*

By E. G. Fearnsides, M.D., M.R.C.P.,

Beit Memorial Research Fellow; Assistant Physician to the Hospital for Epilepsy and Paralysis, Maida Vale; Late Medical Registrar to the London Hospital.

The patient, a boy, aged 7¾ years, was the fifth child of a family of seven children, four of whom survived. The father and mother were healthy. One child died from "measles and bronchitis" at the age of 16 months, a second of "appendix abscess" when aged 4 years, and a third of "meningitis" at the age of 20 months. At birth the patient was a small but apparently healthy child; as a baby he was constantly ailing. At the age of 6 months he was laid up for some weeks with "whooping-cough and bronchitis," and during this illness developed otorrhœa. He walked at the age of 13 months, talked at the usual time, and until the summer of 1910 seemed a perfectly normal child. Early in August, 1910, he had a "slight fit," which lasted a few minutes only, and was not followed by any paralysis. On September the 22nd, 1910, after a similar fit, he vomited and lost consciousness, and for five days lay comatose. On September the 28th, when he recovered consciousness, he was found to be hemiplegic and to have sustained a number of superficial burns, the largest on the left thigh, produced by the application of hot bottles to his limbs and abdomen. Between September the 28th

* The case was shown to the Neurological Section of the Royal Society of Medicine, on February the 25th, 1915.

and October the 10th, 1910, when he first came under my observation, he was dazed and apathetic, asking for what he wanted and understanding more or less what was said to him. Although at this time he passed urine into the bed, yet he never passed a motion unwittingly. He coughed from time to time. On October the 10th, 1910, he was admitted to the London Hospital under the care of Dr. Percy Kidd, and remained an in-patient until November the 14th, when he was discharged to a convalescent home.

On admission the temperature was not raised, the rate of the pulse was 96 beats per minute, and of respirations 24. The patient, who was pale and looked ill, lay in bed, somnolent and apathetic, but could be roused, and then was irritable and yawned frequently. From the right ear a copious discharge was seen to proceed through a large perforation in the drum, and it was observed that he preferred to lie with his head on the right side and resented rotation of his neck, but there was no cephalic retraction. The right optic disc and fundus appeared normal; the inner margin of the left disc, however, was indistinct, but the vessels were unaffected. The left half of the face was paretic. The tongue came out straight on protrusion, and the movements of the palate were unaffected. The left upper extremity was flaccid and could not be moved voluntarily. The left lower extremity was stiff, spastic, and extremely paretic. On the left half of the body the deep reflexes were increased, ankle clonus was obtained, and the left plantar response was extensor; on the right side the reflexes were normal. Abdominal reflexes were obtained on both sides, and Kernig's sign was not present. On the external aspect of the left thigh were two recent burns (1½ in. by 3 in. and 1½ in. by 2 in.), and smaller burns were seen on the inner aspects of the right thigh and right arm. He passed urine incontinently under him, but asked for the chamber. No abnormal signs were discovered in the heart, lungs, abdomen, and urine, and during the whole period of observation the temperature was never raised above 99° F. On October the 11th 2 oz. of clear cerebro-spinal fluid were obtained by lumbar puncture; this fluid was sterile and contained no excess of cells.

After admission he gradually improved, became less irritable, and soon began to take interest in his surroundings. The burns healed rapidly; the paresis of the leg soon cleared, and the signs of facial involvement disappeared before discharge. Gradually also a certain amount of power of movement returned in the left upper extremity. On November the 14th he was discharged to a convalescent home; at this time he walked well, and was able to use the left upper extre-

mity in feeding himself. Whilst still in the country, on December the 5th, 1910, he became drowsy, refused food, and developed copious otorrhœa on both sides; the temperature rose to about 103° F., and the glands behind both mastoid processes enlarged and became tender. He was re-admitted to the London Hospital on December the 17th, 1910, and remained an in-patient until January the 5th, 1911. On discharge he showed a characteristic left-sided hemiplegia, affecting chiefly the upper extremity. The left leg was slightly spastic, but the left upper extremity was in general hypotonic, although at times mobile spasms of the distal portion of the extremity were observed.

Since this time he has been constantly under observation. In September, 1911, he became subject to "fits." These attacks always have begun in the affected left arm and thence spread progressively to the forearm and hand; frequently the whole of the left half of the body is involved, and occasionally consciousness is lost in a generalised convulsion. The attacks occur at irregular intervals, and usually several occur together. On December the 21st, 1911, he was again admitted to the London Hospital. The attacks, which I witnessed at this time, were characteristically Jacksonian, and affected the left shoulder, left arm, left forearm, left hand, and left leg; consciousness was not lost. Since this time the fits have continued. In December, 1911, the muscular development and the length of the bones of the left upper extremity were very similar to those which he now presents, and the left upper extremity was proportionately smaller than the other extremities; the head was asymmetrical, and distinct paresis of the left half of the face was present, but on protrusion the tongue came out straight. Ankle clonus and a Babinski extensor response were present on the left side. Since this time the left upper extremity has grown little, if at all, either in length or in diameter.

On January the 29th, 1915, he again came under observation, and was admitted to the Hospital for Epilepsy and Paralysis, Maida Vale, complaining of "bouts of fits." In each fit movements are seen to begin in the region of the left elbow, and spread thence to the left shoulder and left hand, and also to affect the joints of the left lower extremity and the muscles of the left side of the face. Consciousness is rarely lost. After each fit voluntary power over the left half of the body is much diminished. In addition to these Jacksonian convulsions he also suffers from frequent momentary attacks of *petit mal*.

The patient is a small, undersized boy, aged 7¾ years, weighing

2 st. 13 lb. He is observant and fairly intelligent. The head is asymmetrical, its circumference is 19 in., the bimeatal diameter 13 in., and the distance from nasion to inion measures 13¼ in. The left upper extremity in every proportion is much smaller than the right. The under-development is most noticeable in the region of the upper arm and shoulder. There is no shortening of the left lower extremity. The muscles of the left upper extremity are, in general, hypotonic, but occasional waxing and waning of muscular tone can be observed. The deep reflexes on the left half of the body are increased; the knee-jerk is exaggerated, ankle clonus can be elicited, the wrist- and elbow-jerks are brisk and the left plantar response is extensor. Abdominal reflexes are present on both sides. No sensory interferences can be demonstrated. The left hand and wrist are always cold, blue, and clammy, and the left foot and ankle tend to be cyanotic. The action of the sphincters is normal. The pupils react normally to light and accommodation. Ptosis, nystagmus, and diplopia are not present. The furrows on the left face are less definite than on the right, but all voluntary and emotional movements are symmetrical. The movements of the palate, larynx, and tongue are unaffected. The Wassermann reaction in the serum is negative.

MEASUREMENTS.

	Left. Inches.	Right. Inches.
Upper extremity—		
Acromion—tip of middle finger	18⅞	20
Acromion—olecranon	7¾	8
Olecranon—styloid process of ulna	6	6¾
Wrist—tip of middle finger	5⅛	5¼
Arm—		
Circumference at olecranon	5⅛	5¾
Circumference 2 in. above olecranon	5⅜	6⅛
Circumference 4 in. above olecranon (at rest)	5⅝	6¼
Circumference 4 in. above olecranon (in flexion)	5⅝	6½
Circumference round axilla	10	10½
Forearm—		
Greatest circumference of forearm	5⅝	6½
Circumference 2 in. below condyle	5⅛	6
Circumference 4 in. below condyle	4¼	4¾
Greatest circumference of wrist	4¼	4½
Glove-circumference of hand	5¼	5½
Chest—		
Circumference of chest at level of nipple	11½	12

	Left. Inches.	Right Inches.
Lower extremity—		
Anterior superior iliac spine—internal malleolus	$20\frac{5}{8}$	$20\frac{5}{8}$
Thigh—		
Circumference just above patella.	$8\frac{1}{2}$	$8\frac{1}{2}$
Circumference 2 in. above patella	$9\frac{1}{8}$	$9\frac{1}{8}$
Circumference 4 in. above patella (scar)	$10\frac{1}{2}$	11
Circumference 6 in. above patella (scar)	$11\frac{3}{8}$	$11\frac{7}{8}$
Leg—		
Circumference 2 in. below patella	$7\frac{5}{8}$	$7\frac{5}{8}$
Circumference 4 in. below patella	$7\frac{3}{8}$	$7\frac{3}{8}$
Circumference 6 in. below patella	$5\frac{7}{8}$	6

Comments.

The nature of the original illness in this child is still doubtful. In September, 1910, a diagnosis of polioencephalitis cerebri was made, yet at this time the absence of any cellular excess in the sterile cerebro-spinal fluid mitigated against such an opinion. The history of otorrhœa and the subsequent episodical attacks of aural trouble, however, seem in favour of the diagnosis of some local septic cerebral trouble consequent upon chronic otitis media as the original cause of the hemiplegia. Polioencephalitis and poliomyelitis are now recognised to be due to the same small coccoid micro-organism which Noguchi and Flexner have succeeded in cultivating in artificial media, and the present state of the patient might have suggested that the diagnosis of polioencephalitis was correct, and that the condition which the patient now exhibits was due to the effects of a disease which in 1910 affected both the cortex cerebri and the grey matter of the spinal cord. That this opinion is incorrect is, I think, proved by the occurrence of attacks of Jacksonian convulsions starting in the least developed portions of the left upper extremity. The difference in the volume and size of the muscles of the two upper extremities in this case as shown by the hemiplegic signs and a study of the history is due to slowness of development in a limb which is the subject of an upper motor neuron lesion, comparable with the trophic so-called disuse atrophy which is seen in adult subjects of hemiplegia. In this patient the precentral cortex of the motor area was affected only locally, with the consequence that the asymmetry is only noteworthy in the upper extremities.

NOTE ON SUPPURATIVE PAROTITIS FOLLOWING PNEUMONIA.*

By J. Porter Parkinson, M.D., M.R.C.P.,

Senior Physician, Queen's Hospital for Children.

A boy, aged 3 years, was admitted to the Queen's Hospital for Children on January the 2nd, 1915. He had been ill for a week with fever and cough. He had always been a weakly child; he had whooping-cough at four months and pneumonia when one year old. He was the elder of a family of two. The family history was healthy.

On admission there were signs of resolving pneumonia in the upper lobe of the left lung with harsh bronchial breathing at the base of the chest on the right side. The temperature was 99·5° F., pulse 108, respiration 24, heart, abdomen, and throat normal. On January the 7th the temperature rose to 104°, without any fresh signs in the chest; but next morning there was a hard, firm, and tender swelling in the right parotid region, and on the next day the overlying skin was red and œdematous, but no fluctuation was felt. On the following day, January the 10th, a deep incision below the lobe of the ear reached an abscess, and a small quantity of thick pus was removed. Films from this showed pneumococci and a few staphylococci. A tube was left in the wound, and the temperature, which had kept continuously about 103° F., fell to normal. Recovery was uneventful, and was practically complete when the child developed measles on January the 23rd, and had to be removed to the infirmary. I have considered this case worthy of record on account of the rarity of parotitis following pneumonia and due to the pneumococcus. Apparently the infection travelled by the blood stream, as there was no morbid appearance in the mouth, and the child never coughed up sputum, so it is unlikely that the *materies morbi* travelled up the duct.

* The case was reported to the Section for the Study of Disease in Children of the Royal Society of Medicine on March the 26th, 1915.

A CASE OF MYELITIS IN A CHILD.

By Hugh T. Ashby, B.A., M.D.Cantab., M.R.C.P.Lond.

Visiting Physician to the Manchester Children's Hospital, Pendlebury, and to the Salford Royal Hospital; Physician for Children to the Manchester Board of Guardians.

The patient was a boy, aged 5½ years, who, previous to being admitted to the Children's Hospital, had complained of vague pains in the chest. The parents also noticed that he was slowly losing the use of his legs, and on admission he was quite unable to move them. The family history was good, and previous to the onset of the illness he had always been healthy. He had not had any of the infectious fevers. When sent by his doctor there was complete paralysis of both legs and back, with anæsthesia extending from the toes up to a line drawn round the chest just below the nipples. The knee-jerks were much exaggerated, and there was a Babinski sign present on both sides. The abdominal reflexes were absent. There was no optic neuritis and no impairment of the mental power. The upper extremities and neck were unaffected. The urine was normal, but continually dribbling away, and there was also incontinence of fæces during his stay in hospital, and up to the time of death he complained of vague pains in the chest and in the upper abdomen, but his general condition remained the same till just before he died.

There was only a slight rise of temperature on and off throughout the illness, but just before death he had hyperpyrexia. He had a small bed-sore on admission to hospital, which, however, soon healed. The heart and lungs were normal. After three weeks, the anæsthesia, which had remained at the same level, began to increase upwards, and he became rapidly worse, no doubt due to the vital centres becoming affected. Unfortunately no post-mortem examination was obtained.

Most cases of myelitis in children appear to follow one of the infectious fevers, none of which he had had, however. There was no improvement with potassium iodide, no family history of syphilis, and the Wassermann test was negative. There was no spinal caries nor injury, and the case was quite unlike anterior poliomyelitis or a spinal growth. The disease seemed to spread up the cord quickly at first, became stationary for a time, and then advanced till the vital centres were affected.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, March the 26th, 1915.

The President, Mr. T. H. Kellock, *in the Chair.*

Case of the Atonic Form of Cerebral Diplegia (Foerster).—Dr. F. E. Batten and Dr. W. H. von Wyss showed a child, aged 3 years, whose case they had described in the British Journal of Children's Diseases, 1915, xii, p. 68.

Four Cases of Ichthyosis in a Family of Six Children.—Dr. E. G. L. Goffe.—The dry, scaly condition of the skin began to show itself about two months after birth in each of the children affected, who were 10 years, 6 years, 3 years, and 8 months respectively.

The father's skin was smooth, and the father's only sister had a smooth skin.

The mother's skin was smooth. Her two sisters also had smooth skin. One of the mother's brothers had a smooth skin; the other had a dry, scaly skin. This brother had five children, and all of them had smooth skins.

Dr. Goffe also showed two cases of ichthyosis in a family of four children.

Ichthyosis associated with Long-standing superficial Ulceration of the Tongue.—Dr. J. L. Bunch.—The patient, a boy, aged 12 years, had had generalised ichthyosis since infancy. Chronic glossitis with superficial ulceration had been present since birth, but varied somewhat in severity at different times. His mental capacity was somewhat deficient.

Case of Pulmonary Regurgitation.—Dr. Edmund Cautley showed a girl, aged 15 years, with a history of scarlet fever at the age of 9 years, and that a heart affection was then recognised. Last August, and again in December, she had some pain and swelling in the hands and ankles. On December the 29th she took to bed, where she remained on account of shortness of breath, for which she was admitted to the Metropolitan Hospital on January the 8th, the pain having subsided a week previously. During her stay in hospital there had been no evidence of rheumatic fever, no fever, and no change in the cardiac signs. She was rather high-coloured, big, strong, and well developed. Her periods occurred every two weeks.

Enlargement of the right ventricle was shown by percussion, cardiogram, and skiagram. Over the pulmonary area there was a long, loud diastolic murmur; most marked over the third and fourth left interspaces near the sternum, and 2 in. to the left thereof, and then rapidly lost in all directions; sometimes heard faintly along the right edge of the sternum. There was no thrill. The pulse was rather small and had no "aortic" character, and varied from 68 to 100 per minute. A blood count on February the 12th

yielded 5,270,000 red and 8600 white cells. All the facts appeared to support the diagnosis of simple pulmonary regurgitation, except that the skiagram indicated displacement of the apex a little downwards and to the left as in aortic regurgitation, but there was no evidence of the hypertrophy usually associated with aortic regurgitation and such a loud murmur. Both the ætiology and prognosis of this case were of interest. Dr. H. H. Brown, of Ipswich, had told the speaker that he had under his charge a schoolboy with pulmonary regurgitation who appeared in good condition and health, was good at all sports, and had won the competition for staying under water and collecting eggs a few years ago

Ectromelus with absence of Pectoral Muscles on the Right Side. — Dr. Edmund Cautley.—The child was aged 1 year. The metacarpal bones and phalanges of the right hand were absent, together with the pectoral muscles on the same side. There was absence of the sternal ends of the second, third, fourth, and fifth ribs. The parents were healthy, and there was no family history of deformity.

Deformity and Wasting of the Hands with Deformity of the Feet.—Dr. Edmund Cautley showed a girl, aged 7 years, a patient at the Belgrave Hospital for four years. During 1911 she attended for styes, enlarged tonsils, general bronchitis, and occasional enuresis nocturna. In November her feet were encased in plaster for extreme flat foot. In February, 1912, special boots, stiffened on the inner side, were prescribed. Tonsils and adenoids were removed in January, 1913, and the cervical glands were enlarged during the next two months. New boots were ordered in August, 1913, and about this time impairment on the right apex was noted. Recently she had been at Herne Bay for six months for tuberculosis at both apices.

At present there was impairment of resonance at the apices, mostly on the right side, with signs indicative of enlarged glands in the mediastinum on that side, but none of active pulmonary disease. The hands showed considerable wasting, ulnar deflection, and unusually long fingers, with a little clubbing of some of them—(?) a pulmonary osteoarthropathy. Both feet showed a little equinus: the left one was very flat, while the right showed extension of the proximal phalanges and flexion of the distal phalanges.

Sclerodermia with Congenital Contractures and other Defects in an Infant.—Dr. E. A. Cockayne showed a male infant, aged 1 year, first child of healthy parents; premature. The child was first seen five months ago, and found to have congenital hydrocephalus, deformity of both ears, marked congenital contractures of the fingers and toes, and less marked contractures of both wrists, left elbow, and both knees. Contraction of the skin round the nose and mouth was also noticed. A Wassermann reaction proved negative.

On February the 9th, 1915, the mother noticed that the skin on the outer sides of both thighs was very hard. This condition appeared suddenly and painlessly. There were large, symmetrical areas of thickened skin on the outer aspect of each thigh. The skin was not changed in colour, did not pit on pressure, and was not tender. The surface was nodular. The skin over the abdomen was affected similarly, but to a much less degree. Since it was first noticed there had been no change.

Case of Inherited Syphilis with Wassermann Reactions.—Dr. Reginald Miller showed a boy, aged 2 years, well nourished. First child, no miscarriages, full term, breast fed.

Father: Infected December, 1911. Treated at Lock Hospital with mercury until April, 1912; then two doses of salvarsan. Wassermann reaction not tested, as he failed to report. In August, 1912, no fresh symptoms; he reported and was found to give a weak positive reaction. He then received eight doses of mercury intra-muscularly. In April, 1914, reaction negative.

Mother: No symptoms throughout. Conception about June the 24th, 1912.

Child: Born March the 22nd, 1913. At the age of five weeks, epiphysitis of left elbow. Was treated with grey powder for seven weeks, combined with inunction (two weeks). Treatment then stopped for two months, owing to doubt in diagnosis. At the age of five months he developed scaly rash on buttocks. Was given antisyphilitic treatment, including inunction, from fifth to fifteenth month. None since.

Wassermann reactions of child and mother (full test): At five weeks, child and mother negative; at five months, child and mother positive; at nine months, child and mother positive; at eleven months, child negative, mother (after salvarsan and mercury) negative; at fifteen months, child and mother negative; at twenty-three months, child and mother negative.

Case of Chronic Polyarticular Arthritis commencing in a Child at the age of 2 years 4 months.—Dr. E. G. Fearnsides.—The patient was born December, 1911. Until April, 1914, he was a healthy child. He was breast fed for twelve months, walked at the age of eleven months, and began to talk when aged thirteen months. In April, 1914, he became ill in himself, and subject to attacks of sweating; shortly after this the small joints of his fingers swelled, his knees enlarged, and he became unable to walk.

He first came under observation on August the 28th, 1914. At that time he was pale, flabby, wasted, and unable to use his hands, or to walk. There were considerable muscular wasting of the extremities, and great periarticular swelling of the joints of the fingers, wrists, knees, and ankles, and apparently some enlargement of the bones. The lymphatic glands were not enlarged, and the spleen could not be felt. He sweated freely. The tonsils were not enlarged. No abnormal signs could be discovered in the heart, lungs, or abdomen, and the urine contained neither albumin nor pus.

Under treatment with massage and grey powder by the mouth he had continuously improved. By November, 1914, he was again able to walk. The anæmia gradually improved, and the periarticular swelling of the knees, ankles, wrists, and fingers gradually diminished. The Wassermann reaction in the serum was negative.

At the present time a blood examination showed: Red blood cells 5,450,000 per cubic millimetre, white blood cells 11,500 per cubic millimetre, hæmoglobin 64 per cent., colour index 0·8, with the differential count—polymorphonuclear cells 48·6 per cent., small lymphocytes 38·4 per cent., large mononuclear cells 10·4 per cent., transitional cells 1·2 per cent., eosinophiles 1·2 per cent., and mast cells 0·2 per cent.

Case of Pseudo-hypertrophic Muscular Dystrophy associated with Amentia.—Dr. E. G. Fearnsides.—The patient, who was aged 8 years, was a characteristic instance of pseudo-hypertrophic muscular dystrophy. He could not sit up straight, nor raise himself from the recumbent to the sitting posture without the aid of his hands. He stood unsteadily on a

wide base, and walked with a waddling gait. He could not raise himself from a sitting to an erect posture. When held by the axillæ he slipped through his shoulders. The muscles of the calves, the infraspinati, the outer part of the lumbar mass of the erector spinæ and the axillary portions of the latissimus dorsi muscles were symmetrically hypertrophied and defective in power. The pectoralis major, deltoid, biceps, triceps, the lower half of the trapezius and the glutei, vasti, and anterior tibial muscles on both sides were small and paretic. The rhomboids, serratus magnus, and the distal muscles of the extremities were proportionately better developed. There was little lordosis. The grasps were feeble. The dorsiflexors of the ankles were weak, but there was little talipes equinus. The muscles of the neck were fairly developed and those of the face unaffected. The abdominal muscles appeared normal. The knee-jerks could just be obtained, and doubtful ankle-jerks were present. No plantar responses could be elicited. The abdominal reflexes were brisk. The fingers were long and tapering. The metatarsals were hyperextended, and the phalanges of the toes distally flexed. The extremities were usually cold; they sweated freely and showed cyanotic mottling of the skin. The cranial nerves were unaffected. Sensation and the action of the sphincters were normal. Vision was good, and the optic discs appeared healthy. Hearing, smell, and taste were unaffected. He had never been subject to fits or other forms of seizure. The head was irregularly shaped and measured 20 in. in circumference, $13\frac{1}{2}$ in. from nasion to inion, and the vertical bimeatal distance was 13 in. The right frontal bone was prominent, and showed a curious bump surrounding a scar. The bridge of the nose, palate, and ears were well developed. He lolled with his tongue and constantly made grimaces.

Mentally he was backward. He could not read, did not know his alphabet, and could not state where he lived, his age, nor the ages of his brothers. He could only count up to four, and did not know how many twice two made. He did not know the value of money, and called a sovereign a halfpenny. He could name and knew the uses of common objects. He was interested in pictures, and could name the objects which they depicted. He was musical, and could whistle and sing.

There was no family history of myopathy. His father and mother were normal. The patient was the youngest of four children, and the other three were healthy. In walking and mentally he had always been backward.

Case of Pneumothorax.—Dr. Eric Pritchard showed a girl, aged 12 years, who had been brought to hospital on March the 4th, 1915, for sudden breathlessness, with some cyanosis and pain in left side of chest. She had complained of the pain off and on for three weeks, but had been going to school until the day she came to hospital. No cough, and no previous illness. On examination nothing abnormal was found in the chest; the heart was slightly dilated, but otherwise in the normal position. Patient was refused admission, and was taken home. She continued to complain of pain and was faint at times. Two days later she was admitted; temperature 100° F., pulse 104, respiration 28. Physical examination as before. She continued to complain at times of pain in the lower and posterior part of the left axilla, but was otherwise comfortable. On the fourth day the pain became severe, dyspnœa marked, colour pallid, temperature 103° F., respirations 64, and pulse 136. The heart's apex beat was in the fourth right space about 1 in. internal to the nipple line. The left side of the chest was immobile and distinctly full under the clavicle. The note was hyper-

resonant, breath sounds scarcely audible, vocal resonance and vocal fremitus absent; coin sound obtained. In four days' time the respirations had come down to 28, and the pulse to 96, while the temperature varied from 100° F. to 101° F.; the patient was quite comfortable. The note at the left base behind became dull, otherwise there was very little change in the physical signs.

Hydrocephalus and Spina Bifida with Deformity of the Legs.—Mr. Philip Turner.—The patient was a boy, aged 2⅔ years. The right foot was in a condition of talipes equino-varus, and there was bowing inwards of the right tibia. The knee-joint was normal in position, and the patella could be felt. The left foot was also in a position of talipes equino-varus, but the right thigh was externally rotated so that the popliteal space was directed forwards. The tibia was still further externally rotated, so that the foot, though actually in a position of marked equino-varus, was rotated outwards and the sole directed forwards.

Flexion of the knee was impossible, but hyperextension could be produced at an angle of 90°. The legs were not completely paralysed, though they could be moved but little. The child seemed intelligent, and the vision was normal. There was incontinence of urine and fæces. The X-rays showed that all the long bones were present except the left patella. The long bones were, however, unduly slender, and the epiphyses were enlarged and indefinite, though it was doubtful if there were any real pathological change. There was some evidence of periostitis of the left femur.

Note on Suppurative Parotitis following Pneumonia.—Dr. J. Porter Parkinson (*v.* p. 141).

Abstracts from Current Literature.

Medicine.

Feeding the newborn (*'New York Med. Journ.,'* 1915, ci, *p.* 67).—**Herrman** advises putting the infant to the breast every three hours followed by feeding with 1½ oz. of 10 per cent. lactose. This just supplies the twenty to twenty-five calories per pound necessary to meet the energy requirment of the first few days. The result is a diminution of the average loss of weight from 11 to 6 oz., an increase from 35 per cent. to 65 per cent. in the cases regaining their birth weight after ten days, and there is never inanition fever. The advantage gained continues during the first month, and no disturbances were seen that could be attributed to this method.

J. Porter Parkinson.

Remarks on weaning (*'Journ. de Méd. de Bordeaux,'* 1914, lxxxv, *pp.* 229 and 245).—**E. Leuret** defines weaning as the period during which a food other than a woman's milk is given to the infant and which ends in the cessation of breast-feeding. The duration of lactation depends upon the suction of the infant and can last as long as this stimulus is exerted; it is in no way cyclical and its cessation between ten to eighteen months depends on the fact that other methods of feeding are then begun. Weaning should be undertaken when the mother's health deteriorates, as

evidenced by the onset of anæmia, neuralgia, and menstruation; when the child's health is good, in the absence of hot weather, and never before a long sea journey. Sudden weaning is inadvisable, as it may cause a sudden fall of weight. Only about a third of present-day mothers can suckle their children advantageously up to the end of the eighth month. On the other hand, 90 per cent. can feed their children up to the fourth month and can continue to do so hereafter if breast is aided by artificial feeding. The substitution of some cow's milk at or about the fourth month is recommended as an antidote to the laxative effects of certain maternal milks. A teat with only one hole and without a valve should be used. Maternal feeding is usually abandoned because it is feared it may spoil the figure and that it interferes with conjugal relations. Neither of the objections is valid. Contra-indications to breast-feeding of an anatomical nature are very rare, but in true umbilication of the nipple breast-feeding is impossible. Excoriations and fissures, by their intense sensitiveness, at times result in weaning. Very occasionally, either the casein or the fat of the mother's milk causes diarrhœa. This can be remedied by alteration in the maternal diet. A general family history of tuberculosis is not a contra-indication to maternal feeding, nor are healed localised lesions, such as tuberculous diseases of the knee, glands, or spine. A case of a child successfully fed by a mother with a severe open pulmonary lesion is quoted as showing how little bad effect the milk may have on the child even when the health of the mother suffers from lactation. In acquired syphilis of mother or child, the latter must be weaned at once. As a general rule, women with cardiac disease should wean their infants, but where the lesion is compensated and does not require treatment, breast-feeding may be continued. The milk of eclamptic women is usually harmless, but in two instances the infants died from convulsions, and in a third death was due to nephritis and erysipelas. In lead poisoning, maternal feeding can be continued. In cases where opium and arsenic have to be given continually, resort must be made to artificial nutrition. Weaning may be advantageously delayed in premature children, in normal children it should be undertaken when the child's store of iron in the spleen and liver is exhausted. Maternal milk is poor in iron, but this defect can be remedied by taking meat-juice at the end of lactation. CHRISTOPHER ROLLESTON.

An experiment in the collection of human milk for hospital and dispensary use (*'Arch. of Ped.,'* 1914, XXXI, *p.* 171).—**B. R. Hoobler** quotes Langstein and Hoerder to the effect that only 15 per cent. of marasmic infants die if feedings of human milk be given. The Social Service Department found out those mothers who had excess of breast milk and were willing to sell it. Such mothers are then examined clinically and their blood examined by Wassermann's method for syphilis. The woman is taught how to remove the milk by the breast-pump, and comes once or twice a day to the hospital, the number of visits depending on the amount of milk. The mother is paid fifty cents for each visit. The average amount of milk given at each visit is 10 oz. Each ounce costs five cents. The children of these wet nurses are kept under observation, and are found to suffer no ill-effects but to gain in weight and general appearance.

CHRISTOPHER ROLLESTON.

The feeding of skimmed breast-milk (*'Journ. Amer. Med. Assoc.,'* 1914, LXIII, *p.* 1181).—**F. C. Neff** states that there are certain cases in which the temporary feeding of skimmed breast-milk is advisable until the

digestive difficulties of the infant are over and a return to whole breast-milk is possible. This method of feeding is worthy of trial in the great class of infants with intestinal indigestion as manifested by abdominal distension, colic, fretfulness, loose green dyspeptic stools, failure to gain in weight through several weeks; in babies that have gastric and pyloric symptoms; in the eczema of infancy, and in the congenitally weak and premature infants. Skimmed breast-milk is a safe and digestible food, and is applicable whenever a fat-free milk is indicated. Human milk permits of simple cream separation and can usually be obtained for this purpose from the mother or wet-nurse. T. R. Whipham.

Undiluted citrated milk in infant feeding (*'Guy's Hosp. Gaz.,'* 1914, xxviii, *p.* 157).—**H. C. Mann** gives the results of a further three years of experience in the feeding of infants with citrated whole-milk, and the present paper may be regarded as a sequel to that noted in the British Journal of Children's Diseases, 1911, viii, *p.* 503. An interesting modification of the usual method lies in the employment of equal parts of sodium and potassium citrate when more than eight grains of citrate are required to each feed. This is done with a view to the prevention of sodium retention. The potassium salt may produce free diuresis. Dr. Mann now employs citrate in the usual proportion of two grains to the ounce of milk, not, however, going above ten grains of citrate for any sized feed. He continues citration up to the age of ten or even eighteen months, the limit being very variable. He is not in favour of long-interval feeding. His very thorough investigations bring out two interesting side-issues on the milk supply of London. He finds that the percentage of fat in London milk is strictly looked to; only twice in eight years has he found samples to contain less than 3 per cent. of fat, while frequently it is 3·5 per cent. or even over. On the other hand, he finds that the delivery of short measure is very frequent. Dr. Mann gives the amounts of citrated whole-milk which he advises for infants of various ages. Reginald Miller.

Infant feeding with top milk (*'Med. Record,'* 1914, lxxxvi, *p.* 1043).—**J. H. Mabbott** discusses the advantages of top-milk feeding as against the employment of milk and cream mixtures. One advantage is that of cost, bought cream being comparatively expensive. The other chief advantage lies in the fact that, in New York at all events, cream which is bought as such is a day older than that obtainable from the milk supplied commercially. The author gives an account of the methods he has adopted in top-milk feeding and emphasises their simplicity.

Reginald Miller.

Cow's milk raw and heated (*'Med. Record,'* 1914, lxxxvi, *p.* 58). - Freshly drawn milk contains but few bacteria, but these multiply quickly so that in Washington the general milk supply contained twenty-two millions of bacteria in 1 c.c. Cooling is a specially important measure in diminishing the bacterial count. Pasteurisation does not affect milk either chemically, physically, or biologically, but on boiling changes occur in the taste, odour, and colour. It becomes more viscous owing to the coalescence of the fat globules. A film is formed on the surface, consisting of fat and protein matter. Calcium salts are precipitated and the milk becomes acid. Pasteurisation, unlike boiling, does not destroy the enzymes. Heated milk is said by some to be less digestible and to cause distinct constipation and

loss of vitality among infants so nourished. Scurvy rickets is so rare as to be negligible. As to acute gastro-intestinal disorders, Park and Holt found that children reared on heated milk did far better than those who received milk raw. CHRISTOPHER ROLLESTON.

Observations on the 'Eiweissmilch' of Finkelstein and Meyer (*'La Pediatria,'* 1914, XXII, *p.* 405).—**E. Modigliani** conducted a very large number of experiments on children with this preparation (albuminous milk) with the following results: (1) It sometimes causes intolerance and vomiting, which prevents its administration. (2) In the absence of this, it had a marked and lasting value in artificially fed infants with intestinal disturbance. (3) In cases of loss of weight it had no good results, even after forty-five days. (4) As supplementary to breast feeding it gave good results. (5) Considering its long and complicated preparation and its high price, as well as technical difficulty in its administration, it had no advantage over butter-milk or malted milk. (6) Used as a food for normal healthy children, the results were very unfavourable, probably from causing intoxication by hetereogenous albumin. VINCENT DICKINSON.

Sterilised milk and rickets (*'La Clin. Infant.,'* 1914, XII, *p.* 431).—**G. Variot,** whose extensive experience of rickets is almost unique, has given us the last word on this disease in a masterly essay, which should be read by all those interested in children's diseases. We have only space to notice his views on the part played by diet as an ætiological factor. It has been asserted that sterilisation of the milk has a deleterious effect on its nutritive value, and that infants reared upon it often become rachitic, that raw milk preserves its enzymes and living ferments, and has a great advantage over milk modified by heat. Variot says that far from this being the case, raw milk causes digestive disturbances and even rachitic manifestations, which are avoided by the use of milk treated to 108° C., and by milk superheated and homogenised. Having used for more than twenty years, at the Hospice des Infants Assistés, enormous quantities—more than a million litres—of milk thus treated, he affirms that complete sterilisation of milk by superheating does not produce rickets. Doubtless, rickets usually of a benign type appears in children who are fed on broth too early or on excessive quantities of milk, but with judicious feeding these children do not become rachitic, or at most only have slight costal deformity, there are no deformities of the limbs, their height is normal, they walk at thirteen to fourteen months, and have no abdominal distension. After an experience of more than ten thousand children, Variot claims the right to deny that sterilisation of the milk plays any part whatever in rickets. Over-feeding with milk of good quality produces gastro-intestinal troubles, and thus may cause rickets; it is probable that florid types of the disease come under this category. But it is especially complete privation of milk that is the principal cause of grave forms of rickets with hypotrophy. Paps, broths, and starchy foods, with or without milk, are potent factors in its production. Variot recalls whole families made rickety by such erroneous feeding, and when it occurs in twins it exists in the same degree and with the same distribution, for the feeding has been identical in both. The majority of rachitic infants have had, or still have, gastro-intestinal troubles following hygienic faults. VINCENT DICKINSON.

Infantile scorbutus (*'Boston Med. and Surg. Journ.,'* 1914, CLXX, *p.* 504).—**J. L. Morse** found that 20 per cent. of the cases were fed on condensed

milk or proprietary foods mixed with water and 50 per cent. on proprietary foods or condensed milk. In the cases in which milk was used either with or without proprietary foods, the mixture was given raw in 3 per cent., pasteurised in 16 per cent., boiled, scalded, or sterilised in 81 per cent.

F. R. B. Atkinson.

Infantile scorbutus in a child fed on homogenised milk (*'Arch. de Méd. des Enf.,'* 1914, xvii, *p.* 66).—**G. Schreiber** and **François** describe this case in a boy, aged 4 years. The disease is rare after the second year.

F. R. B. Atkinson.

The influence of starch on infant digestion (*'Journ. Amer. Med. Assoc.,'* 1914, lxiii, *p.* 1375).—**T. S. Southworth,** after a lengthy consideration of the subject, gives it as his opinion that while it is an established fact that even young infants are prepared to digest moderate quantities of boiled starch, the indication for its use appears to lie in those suffering from disturbances of digestion and nutrition. With these, the chief end subserved by such addition to their food is not solely to nourish the infant, but to promote nutrition by making possible a more orderly digestion and absorption of its main nutriment, milk.

T. R. Whipham.

The effect of sugars on the gastric secretions in infants (*'Arch. of Ped.,'* 1914, xxxi, *p.* 749).—**De W. Sherman** and **H. R. Johnes,** as the result of analysing the gastric contents of thirty infants, regard the following as the normal: Free HCl 2·20; combined HCl 4·75; total acidity 8·85. Examining the effects of the ingestion of 6 per cent. sugar solutions they found that cane sugar is only slightly more stimulating to the infant stomach than milk sugar. Malt sugar, on the other hand, is at least twice as stimulating to gastric secretion as either milk sugar or cane sugar. The authors also found that the milk sugar solution was passed on from the stomach about twice as quickly as were the other sugar solutions; but they hesitate to accept this as correct on the grounds that if milk sugar really stimulates the motor activity of the stomach it would probably also stimulate the secretory functions, which as the results above quoted show is not the case in comparison to malt sugar in the form of dextri-maltose.

Reginald Miller.

The significance of the mineral salts in the digestive disturbances of infants (*'Arch. of Ped.,'* 1914, xxxi, *p.* 259).—**C. I. Wood** finds that the percentage of absorption and retention of salts in woman's milk is higher than in cow's milk. The salts of cow's milk are not in the same organic combination as the salts in woman's milk. The whey in woman's milk is a better menstruum for the fat and casein of cow's milk, than the whey of pure cow's milk. If the whey from cow's milk be added to the fat and casein of woman's milk, the infant thus treated does not thrive well.

F. R. B. Atkinson.

Salt fever and sugar fever in pædiatrics (*'Arch. de Méd. des Enf.,'* 1914, xvii, *p.* 757).—**F. Figueira,** from experiments on rabbits and infants at the breast, concludes that injections of solutions of NaCl, lactose, and glucose have no pyretogenous action provided the substances are pure, that the water used for the solution has been doubly distilled in a glass vessel, that it has been sterilised in the autoclave and injected while still warm (*cf.*

British Journal of Children's Diseases, 1913, x, *p.* 229, and 1914, xi, *p.* 121). J. D. Rolleston.

Fat indigestion in infants (*'Boston Med. and Surg. Journ.,'* 1915, clxxii, *p.* 167).—**C. Hunter Dunn** gives an abstract of the result of his study of this group of cases. He summarises the typical feature of the group as "inability to gain weight without fat, and inability to gain with it." He does not find the condition is brought about by previous overfeeding with fat, but rather by overfeeding with carbohydrate which may result in a secondary failure of the power to digest fat. Chronic diseases, particularly tuberculosis, are associated with fat indigestion. He does not think that the inability to digest fat can be well compensated for by increasing the other constituents of the food, and gives a diet low in fat, average in carbohydrate, and comparatively rich in protein. He regards maltose as possibly helping fat digestion, and prefers its use to that of lactose. A micro-chemical examination of the stools for fat is indispensable for the management of these cases. Excess of fat or soap in the stools may be present without clinical symptoms of anything being wrong; nevertheless, there is a danger of a sudden upset in such cases. Free fat in the stools is always a danger sign. In treatment, breast-milk is the best line to adopt; without it we must be prepared for a period of loss of weight which may be prolonged. Reginald Miller.

The nutritive diseases of infancy (*'Edin. Med. Journ.,'* 1914, ii, *p.* 469).—**J. S. Fowler** reviews the nutritive diseases of infancy and gives an account of Finkelstein's work on this subject. The signs of normal healthy nutrition are three: (1) Steady gain in weight; (2) a steady temperature curve, which shows that the food is being burned up properly; and (3) a wide tolerance for alterations in quantity and quality of food. The signs of nutritive disturbance from overstepping the limits of tolerance are: (1) An irregular weight curve, showing unequal gains, losses, and stationary periods; (2) an irregular temperature curve, showing slight rises (99° to 99·5° F.); and (3) the so-called "paradox-reaction" to food. By the paradox-reaction is meant the fact that if to an infant whose weight has become stationary there is given an increased quantity of the food on which he has hitherto thrived fairly well, the result is an aggravation, not an improvement, of the symptoms. The weight may fall, or fever and toxic symptoms (diarrhœa and vomiting) may occur. No attempt has been made to refer at length to Finkelstein's methods of dieting. The main points which seem likely to prove of practical use are: (1) The diagnosis of nutritive disturbance depends largely on the effects of treatment, and this in its turn ought to take account not only of the symptoms, but of the history of the previous diet; (2) the group of cases in which wasting is the chief feature is often due to over-feeding with milk, and the indication is to reduce the fat and add a carbohydrate, such as starch or maltose; (3) in dyspepsia and diarrhœa the carbohydrate should be kept low, and maltose used instead of milk sugar; (4) the indigestibility of casein has been greatly over-estimated. J. Allan.

The gaseous metabolism of infants (Report published by The Carnegie Institution of Washington, 1914).—**Francis G. Benedict** and **Fritz B. Talbot** claim that the heat production of infants confined in calorimeters does not vary directly with the body-surface as is generally supposed, nor

with the body-weight, age or length, but, other conditions being equal, more closely with the pulse-rate, which their observation show is more or less dependent on muscular activity. These findings, to a certain extent, explain the very remarkable differences in the number of calories afforded by infants displaying different degrees of activity. The authors, however, have attempted to determine the basal metabolism of infants under conditions of rest, and even under these conditions they find that the heat given off by any particular infant does not vary directly with the surface area on a basis of the law of cooling bodies, but much more closely with the mass of active protoplasm. On these grounds they explain differences in the basal metabolism of fat and lean infants, it being assumed that fat infants possess relatively small masses of active protoplasm. The mechanism whereby the pulse-rate and muscular movements of the infants confined in the calorimeters are recorded shows very great ingenuity. It does not appear, however, that habits of metabolism have been taken into consideration in these experiments ; it would appear justifiable to suppose that " quality " of metabolism as well as quantity of active protoplasm must influence the output of heat. And these habits of metabolism should have a relationship to the past experiences of the infant both as regards diet, clothing, and environmental temperatures.

ERIC PRITCHARD.

Reaction to iodine of the infants' fæces (*'Riv. di Clin. Pediat.,'* 1914, XII, *p.* 321).—**F. Strina** examined this reaction, in which a blue colour is obtained with iodine, in fifty-five infants in various states of health and conditions of feeding. The reaction was very sensitive considering the number of exciting causes and the scarcity of carbohydrates in the food in breast-fed infants. Although lactic and butyric fermentation takes place in normal digestion, it is completely neutralised by subsequent digestive processes, and hence the author admits that in a wide sense a positive reaction in these cases shows that there is some pathological action in the digestive system represented by a diminished transformation of carbohydrates. In definite pathological conditions, *e. g.*, intestinal putrefaction, which is absent in the infant at the breast, or green diarrhœa, this reaction shows the intensity of the morbid process and is wanting in slight cases. It also serves to indicate whether modifications made in a child's diet during any illness are well tolerated or not. The author, in conclusion, admits that, owing to the simplicity of the technique, the reaction may be habitually employed to afford some idea of the functioning of the digestive system of the infant and to ascertain by repeated examinations whether changes of diet are well borne.

VINCENT DICKINSON.

The occurrence of bacterium Welchii (Bacillus aerogenes capsulatus) in the dejecta of children (*'Bull. Johns Hopkins Hosp.,'* 1915, XXVI, *p.* 27).—**J. H. M. Knox, jun.,** and **W. W. Ford.**—Out of eighteen children, aged from two to twelve years, suffering from minor ailments, but without marked intestinal disturbance, *B. aerogenes capsulatus* was isolated on first examination in nine cases, and on subsequent examinations in the rest. In seven breast-fed infants the dejecta did not show this organism, though seven to twenty tubes were inoculated in each case. This proves that *B. aerogenes capsulatus* must be regarded as a normal and constant inhabitant of the intestinal tract in children, except in breast-fed infants.

J. D. ROLLESTON.

The frequency of Proteus vulgaris in infantile summer diarrhœa (*'Gazz. internaz. di Med., Chir., etc.,'* 1914, *p.* 977).—**L. Maccone** isolated *Proteus vulgaris* from the diarrhœic stools of twenty out of thirty-one infants —*i. e.* in 66 per cent. In two cases it was associated with *B. pyocyaneus*, in one case with *B. fluorescens non liquefaciens*, and in a few cases with *B. coli* or coliform organisms, but never with the typhoid bacillus. Proteus diarrhœa did not show any clinical features to distinguish it from diarrhœa due to *B. coli*, coliform bacilli, or other organisms. In one-third of the cases it followed the ingestion of fruit or vegetables. This confirms the frequency of proteus toxi-infection following a not exclusively milk diet in the first year of life. J. D. Rolleston.

Heat and summer diarrhœa (*'Am. Journ. Dis. Child.,'* 1913, vi, *p.* 289). **J. Zahorsky** begins his paper with a historical *résumé* of the views on infantile diarrhœa. He then tests the hypothesis that heat alone is the causative factor. Latitude has no influence, the death-rate in Jacksonville, a southern city, being lower than in New York. It is shown that while many hot days have a high death-rate, there are other equally as warm days in which no corresponding increase in the deaths is found. Cool periods in the autumn may be attended by a rise in the morbidity and mortality. In the aggregate, however, the excessive heat is inimical to infants sick with gastro-enteric diseases. Excessive heat may cause death from heat-stroke, but in the cases of death from this cause no evidence of acute gastro-intestinal infection could be elicited. Thermic fever and diarrhœa are, therefore, distinct diseases. The temperature of dwellings in Chicago was shown by Helmholtz to be no great factor in causing diarrhœa. Older infants from six to fifteen months are found to suffer most from hyperthermia, while younger infants did not react. This was attributed to the fact that the older infants received undiluted cow's milk, which predisposes to hyperthermia. Pasteurisation and refrigeration of milk have stopped the former epidemics of diarrhœa in foundling homes. The conclusion is that heat alone by its direct effect on the organism does not produce the great increase in morbidity and mortality. Heat produces and increases the virulence and activity of micro-organisms and of endogenic and ectogenic toxic substances of unknown nature. Christopher Rolleston.

A note on the prognostic value of Schmidt's test in summer diarrhœa of infants (*'Med. Journ. of Austral.,'* 1914, i, *p.* 491).—**J. S. Pearson** found that in 2000 cases he never lost one in which the test continued or after treatment became positive, and also that no case was ever cured in which the test continued negative. The test is as follows: a teaspoonful of fæcal matter is placed in a wide test tube, a little sterile water added and well stirred. The tube is then filled from four to six times the volume with a saturated solution of $HgCl_2$, the mixture well shaken and allowed to stand for twelve hours. If the fæces be normal they become bright red: if unchanged bile pigments are present the colour becomes green. If no change occurs bile is absent. F. R. B. Atkinson.

Infectious diarrhœa (*'Am. Journ. Med. Sci.,'* 1915, cxlix, *p.* 17).—**J. L. Morse** attributes diarrhœa to the following causative micro-organisms: (1) The dysentery bacillus, all forms, (2) the gas bacillus, (3) *B. coli*, (4) *B. pyocyaneus*, and (5) streptococci. The pathological lesions are usually limited to the large intestine and the lower two or three feet of the

small intestine. They consist of catarrhal inflammation, hyperplasia of Peyer's patches, and superficial ulceration with more rarely the formation of a pseudo-membrane. The mesenteric lymph nodes are enlarged. The onset is usually sudden. The stools at first contain fæcal matter, which is replaced in a few days by blood and mucus. Their reaction is alkaline. The abdomen is usually sunken and there is no spasm of the abdominal muscles. In some instances the liver and spleen enlarge, the hypertrophy of the former is sometimes considerable. The temperature is always elevated from 100° to 102° F. The blood shows a moderate polynuclear leucocytosis up to 20,000. If the stools are green this colour may be due to *B. pyocyaneus* or to bile. If to the former the green colour disappears on the addition of nitric acid, if to the latter the same re-agent produces Gmelin's colour test. The gas bacillus can be recognised by adding a small portion of the stool to a test tube of milk which is boiled to destroy non-spore forming bacilli and then incubated at body temperature. If the gas bacillus is present the casein is largely dissolved, and what is left is pinkish in colour and filled with holes; only in a well-equipped laboratory can the dysentery bacilli be recognised. Infectious diarrhœa is diagnosed from intussusception by acute pain and shock in the latter and not in the former. Fæcal matter is usually contained in the diarrhœic stools, but not in those of intussusception. There is no distension of the abdomen and no spasm of its muscles in diarrhœa. A tumour per abdomen or rectum can be felt in intussusception. From simple indigestion acute infectious diarrhœa is diagnosed by the presence of fever in the latter condition. The prognosis is unfavourable where there is high fever with much blood in the stools. Restlessness, vomiting, and convulsions are also of evil import. The bowels should first be cleared with castor oil. If this be vomited calomel and sodium bicarbonate should be exhibited in small doses half hourly until 1 gr. of calomel has been given. The lower bowel should be irrigated once or twice in the twenty-four hours with normal saline solution. The most important element in the treatment of infectious diarrhœa is the diet, which depends upon the variety of the infecting micro-organism. The micro-organisms can be divided into two groups as far as the determination of the diet is concerned: (1) The gas bacillus and allied organisms; (2) the dysentery bacillus and the other organisms except those mentioned in (1). Group No. 2 produce harmless products from carbohydrates and toxins from proteins. The products of carbohydrate metabolism have, moreover, an inhibitory action upon the development of dysentery bacilli. In consequence of this lactose is given in 5 to 7 per cent. solution in water and after a day or two in barley water, as soon as the condition improves protein is given in the form of casein or whey. No fat must be given till convalescence is well established. As glycogen is rapidly used up in these conditions, infusions of dextrose 2½ per cent. strength in normal saline is recommended. Three or 4 oz. are given four or six hourly. In infections caused by the gas forming bacillus the carbohydrate must be cut down, while, on the other hand, lactic acid, which inhibits the growth of the gas forming bacillus, must be produced. Either unheated buttermilk or a fat free mixture containing 3 to 4 per cent. of milk sugar and from 1·5 to 2·5 per cent. of protein ripened with lactic acid forming organisms. If blood or pus persist in the stools, silver nitrate irrigations—6 to 16 oz. of a 2 to 3 per cent. solution—should be injected into the bowel, which has been previously irrigated with a solution of sterile water. For pain and tenesmus injections of 2 oz. of a starch solution of the strength of 1 dr. to

the ounce, to which are added 3 to 5 drops of laudanum, can be injected into the bowel. If water is vomited 4 to 6 oz. of normal saline solution should be injected subcutaneously and repeated when absorbed. To reduce temperature, the infant is wrapped in a cheese cloth damped with water at 100° F. The temperature is then reduced by fanning the baby which causes evaporation of the water. CHRISTOPHER ROLLESTON.

Ophthalmology.

Congenital entropion (*'Lancet,'* 1914, II, *p.* 1147).—**N. Bishop Harman.**—The lashes in the lower lid were permanently erect, and the child was born with the condition. The meibomian glands seemed deficient. The mother was normal, but the grandmother was said to have had a double row of lashes. It was proposed to split the lid, so as to separate the lashes from the glands, and graft between the two a strip of mucous membrane. If that succeeded the author expected the lashes would be prevented from reaching the cornea again. J. ALLAN.

Prenatal corneal opacities (*'Med. Journ. of Austral.,'* 1915, II, *p.* 8).—**J. M. Baxter.**—A baby, aged three months, showed dense opacities of both eyes hiding the iris and pupil. The mother had noted the condition from birth. The case was treated with radium, and the opacities cleared up.
F. R. B. ATKINSON.

The bacillus of bovine tubercle as a factor in phlyctenular affections of the eye (*'Lancet,'* 1914, II, *p.* 153).—**Sydney Stephenson** points out that the association between phlyctenulosis and tubercle is proved on both clinical and biological grounds, and can no longer be doubted even by the most sceptical. There is also considerable evidence to support the view that the bovine tubercle bacillus plays an important *rôle* in this affection, and if this contention can be upheld then the remedy lies at hand in the shape of a pure milk supply. It is, indeed, possible that could such be secured by legislation, phlyctenulosis might become one of the rarer affections of the eye in poor children, instead of being, as it is at present, accountable for the vast majority of inflamed eyes in that class. The greatest cause of defective vision in childhood might be largely remedied. At all events, pending legislation, it would certainly seem advisable to sterilise raw milk before giving it to infants and children. J. ALLAN.

Causes and treatment of chronic conjunctival affections in childhood (*'Arch. of Ped.,'* 1914, XXXI, *p.* 895, and *'New York State Journ. Med.,'* 1914, XIV, *p.* 579).—**Anna W. Williams** gives an account of a careful investigation of chronic conjunctival affections in children, and summarises her studies as follows: (1) The written descriptions of trachoma do not agree as to a clinical or a pathologic entity. (2) Among the children of sixty public schools in the crowded lower east side of New York City (supposed to be a hotbed of trachoma) there were found no cases of conjunctival affections answering in their entirety to the classic descriptions of trachoma. (3) None of the cases of follicular affections in these children have developed cicatricial changes due to infection; on the contrary, the great majority of them now present normal conjunctivas. These results may be chiefly attributed to the following measures: (*a*) The carrying out of preventive methods of treatment, such as ophthalmia schools and school clinics, summer

camps, mothers' demonstration classes, home instructions, and "follow-up" work; (*b*) more minute care of acute, as well as of chronic cases, including the specific treatment given at clinics and the follow-up work in their homes; (*c*) non-operative procedures in a large number of cases formerly operated upon. (4) Trachoma inclusions are nests of growing bacteria in epithelial cells—hæmoglobinophilic bacilli in certain cases of papillary conjunctivitis, gonococci in certain cases of gonorrhœal conjunctivitis, and possibly other bacteria in certain other cases of conjunctivitis. (5) If trachoma is present or should be introduced among school-children, it may be controlled by methods which are within practical limits. J. Allan.

Pediculosis of the scalp and eye disease (*'Lancet,'* 1914, II. *p.* 966). —**A. C. Hudson** maintains that in severe cases of phlyctenular keratitis the factor primarily responsible is a pediculosis of the scalp, the ocular affection owing its origin to a transference, in all probability by the fingers, of infective material from the scalp to the eyes. There is, therefore, an urgent indication for the frequent periodical examination of the heads of all school children, followed when necessary by appropriate treatment and facilitated by a regulation that, in the case of boys, at any rate, the hair must be kept cropped close to the scalp. The author is convinced that such a procedure would obviate much suffering and severe injury to sight, and would thus be justified not only on humanitarian but also on economical grounds. J. Allan.

Fragilitas ossium (*'Journ. Amer. Med. Assoc.,'* 1914, LXIII, *p.* 1996).—**M. Ostheimer** reports a case of fragilitas ossium in a girl, aged 3 years. The patient had experienced nine fractures of the long bones at different times. The condition was associated with a deep blue colour in both sclerotics. There was no other history of fractures in the family.

T. R. Whipham.

Dilated pupil of Argyll-Robertson type (*'Lancet,'* 1914, II, *p.* 1147). —**A. Hugh Thompson.**—The condition occurred in a young girl and there was well marked contraction on closure of lids. It was not congenital in her, because two years before her pupils were normal and she had only slight myopia. The knee-jerks were normal. J. Allan.

Cysts in the anterior chamber arising from the pars ciliaris retinæ (*'Lancet,'* 1914, II, *p.* 1148).—**W. T. H. Spicer.** The case had been under observation for seven years; it began with a white spot at the edge of the pupil at 3 months of age. At sixteen months, when first seen, there were three opaque finger-shaped masses coming into the anterior chamber from behind the iris. Four years later these had disappeared, and a cyst about 4 mm. in diameter was seen floating freely in the anterior chamber. Other cysts appeared later and finally there were seven, floating like toy balloons in the anterior chamber. In the meantime the eye had become glaucomatous, a ciliary staphyloma had formed and the eye was removed. The pathological examination showed that the cysts were formed of embryonic retinal tissue containing vitreous. They had their origin in the pars ciliaris retinæ, starting from cellular membranes, which grew over the iris and also into the vitreous; the cysts grew on the surface of these membranes. There was in many places in the walls of the cysts a resemblance to glioma tissue. The case further proved the non-mesoblastic origin of the vitreous. J. Allan.

Cerebral degeneration associated with macular changes (*'Med. Press,'* 1915, I, *p.* 141).—**F. E. Batten** and **S. Mayou,** at a meeting of the Royal Society of Medicine, Section of Ophthalmology, contributed a paper on cerebral degeneration associated with macular changes, and gave a pathological description of a case. In these cases a curious pigmentation occurred at the macula, and usually also around it, and considerable optic atrophy was also present. The brains of these cases did not present any macroscopical abnormality, and they had the usual convolutional pattern, as well as the normal weight and relationship to the cerebellum. The brain and nervous system were examined by several staining methods. There was found to be some degeneration in the medullated fibres; in the cerebellum the myeline was breaking down and degeneration was present in the cells of Perkinji. The most profound change was in the Betz cells; instead of the Nissl granules, there was a curious accumulation of fine granules around the nucleus. In the cerebellum were large granular cells not normally seen. The most marked change was found in a child who had the disease longest, namely, three and a half years. There were marked changes in the fundus, a shrinking of the convolutions, and in some cases the Betz cells were too degenerated to show the vacuolation. This group was similar to the Warren Tay-Sachs cases of amaurotic family idiocy, but occurred at a later age and was not race-selective. The disease now described was characterised by progressive blindness, progressive paralysis, and progressive dementia, but changes in the macula were not always present. S. Mayou dealt with the pathology of the eye condition. The child he examined had evidently lost all perception of light, but that was not so in all cases. Immediately after death the eyes were injected and stained. The changes were confined to the retina, but varied enormously in different parts of the fundus. The principal change was round the macula region. The internal nuclear layers had disappeared altogether, also the rods and cones, and there was some migration of pigment from the retinal cells. J. Allan.

Congenital phthisis bulbi (*'Journ. Amer. Med. Assoc.,'* 1914, LXIII, *p.* 1949).—**A. Brav** reports a case of phthisis bulbi, the result of uveal suppuration *in utero*. The child was well developed and had several erosions on the face, one of which had a suppurative appearance. The eyelids were normal but closed. Both orbits showed marked signs of suppuration and contained some purulent discharge. Deep down in the right orbital cavity there was the remnant of an eyeball the size of a large pea. Scleral tissue was easily recognised, in the centre of which were the remains of a cornea, but there was no trace of iris; the conjunctiva was red and congested. The stump of the left eye was much smaller than the right and the discharge from it was more marked. An examination of the ocular discharge showed the presence of diplococci which did not react to the gonococcic stain. The mother had a pustular acne eruption about one month before delivery, which was probably the external manifestation of some deep-seated infection. The author states that the condition must be differentiated from other congenital abnormalities, such as microphthalmos and anophthalmos. T. R. Whipham.

Orbital abscess with optical neuritis due to acute ethmoiditis (*'Laryngoscope,'* 1914, XXIV, *p.* 803).—**J. H. Güntzer.**—A girl, aged 7 years, suddenly developed an orbital abscess with optic neuritis without any history of a recent illness. The orbital abscess was first incised on the

nasal side below the brow, and on the following day the ethmoidal labyrinth was opened by the external route. Complete recovery took place.
J. D. Rolleston.

A clinical form of tuberculous meningitis beginning with paralysis of the oculo-motor nerve (*'Journ. de Méd. de Paris,'* 1914, xxxiv, *p.* 575).—**Marie** and **Weill** relate the case of a boy, aged 4 years, a congenital syphilitic, who, during convalescence from measles, developed ptosis, external strabismus, and dilatation of the right pupil. There was no headache, vomiting, constipation, or rigidity. Pulse and respiration regular. Kernig's sign negative. Lumbar puncture gave a clear fluid under normal pressure, definitely albuminous with a moderate lymphocytosis. The next day vomiting and Cheyne-Stokes's breathing occurred, and the pulse became slow. The child died next morning. The necropsy showed tubercles along the vessels and nerves of the base with enlarged and caseous tracheo-bronchial glands.
J. Porter Parkinson.

The cure of squint (*'Med. Press,'* 1914, ii, *p.* 617).—**N. Bishop Harman** points out that treatment could be put into three grades: (1) Balancing the vision of the eyes; first there must be correction of any error of refraction by retinoscopy; next, exercise of the vision of the squinting eye. (2) The awakening of the fusion faculty. (3) Operation. The *rationale* of this step lay in the fact that squint of any duration was associated with changes in the tendons, and that these acted as insuperable obstacles to the resumption of brain control. The author describes his operation of "subconjunctival reefing and advancement." One of the advantages of this combined operation is the power for nice regulation of effects. This is of the utmost importance when operation has to be done early to save binocular vision, for at an early age a general anæsthetic is commonly needed, and the operator is entirely dependent on his own judgment and *technique*.
J. Allan.

Reviews.

The Year-Book of Open-Air Schools and Children's Sanatoria. Edited by T. N. Kelynack. Vol. I, 1915, pp. 444 + liii, with many illustrations. London: John Bale, Sons, & Danielsson, 1915. Price 7s. 6d. net.

A vast amount of attention has been given during the last few years to the treatment and prevention of all forms of tuberculosis in children, and Dr. Kelynack has performed most valuable service in bringing together, into a single volume, details of all that is being done in this direction. His 'Year-Book' sets out to provide a complete and trustworthy account of the main principles and practices now governing the education and treatment of children in the open air. It contains full descriptions of the various open-air schools, children's sanatoriums, and other agencies that provide for open-air care and instruction. Practical information as to ways and means, methods and procedure, is added to show how the advice given may

best be carried out. The 'Year-Book' is rendered even more complete by the inclusion of numerous original articles and critical surveys by authors of special experience in the matters with which they deal. They include such subjects as the construction and management of a sanatorium school for children, the architectural ideals in the design of such institutions, the design and utilisation of open-air schools in town and country, the best methods of open-air instruction, the special part to be played in it by school-teachers as nurses, and so forth. Among the "critical surveys" are interesting papers on the sun-cure in tuberculosis, tuberculosis of the glands, the bovine tuberculosis that is so common among Edinburgh school-children, the merits of school-gardening, and the importance of attention to the teeth of children attending such schools. In many of the counties and large towns special schemes for open-air education and treatment have been adopted, and brief accounts of these schemes are inserted. This section of the 'Year-Book' is followed by accounts of the chief special hospitals, homes, and colonies for tuberculous and delicate children. Room has been found to include much interesting information about the warfare against tuberculosis in children that is being waged in America and other countries. At the end of the volume is a *catalogue raisonné* of the associations and societies and other bodies dealing with open-air education and treatment, that should be of great practical utility to workers in this field of social activity.

The illustrations are well chosen, and add considerably to the practical value of the 'Year Book,' its text is clearly written, and should be readily intelligible to the lay reader. The volume should be of great value as a book of reference for public authorities, the secretaries of societies and institutions, social service workers, home visitors, and all who are directly or indirectly engaged in the campaign against tuberculosis. To all these Dr. Kelynack's 'Year-Book' may be warmly recommended. It certainly supplies a long-felt want. A. J. J.-B.

Mentally Defective Children. By Alfred Binet and Th. Simon, M.D. Authorised translation by W. B. Drummond, M.B., C.M., F.R.C.P.E. 1914. London: Edward Arnold. Pp. 180. Price 2*s.* 6*d.* net.

This book will be found to be of considerable use to all who have to deal with mentally defective children, whether they be teachers or medical men. The authors discuss the psychology of such children and the utility of special schools, and describe at some length the pedagogical examination of children and the medical examination of defectives.

Miss M. Drummond contributes an appendix containing the Binet-Simon tests of intelligence, and Prof. Alexander Darroch has written an introduction.

The problem of the mentally defective child has been studied more methodically in France than in this country, and we welcome an English translation of this book, which is the outcome of much patient investigation on the part of the authors. T. R. W.